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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/475,390	12/30/1999	KENNETH M. HOUSTON	CSLL-588	6274

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EXAMINER	
LAO, LUN S	

ART UNIT	PAPER NUMBER
2643	

DATE MAILED: 03/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/475,390	HOUSTON, KENNETH M.	
	Examiner	Art Unit	
	Lun-See Lao	2643	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 September 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Introduction

1. This is respond to the amendment filed on 09-20-2004. Claim 19 has been amended and claims 1-25 are pending.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 8-9 and 22 are rejected under 35 U.S.C. 102(e) as being anticipated by Cheon (WO 99/53867).

Consider claim 1, Cheon teaches an electron-larynx comprising :

a waveform generator (see fig.2, 211,212 (pulse generating circuit)) configured to selectively generate an input signal (page 10 line 20 –page 11 line 3);

a linear transducer (see fig.2, (25) a signal from (211 and 215) to 25 for generating vibration) having a throat engagement portion (see fig.1,15), said linear transducer (see fig.2, 25) configured to receive and transform said input signal into a corresponding output vibration of said throat engagement portion (see fig.1, 15), said output vibration

being a substantially linear function (transform an input signal to an output vibration) of said input signal (see page 10 line 1-5); and a power source (see fig.2, 27 and page 14-20).

Consider claims 8-9 Cheon teaches the linear transducer (see fig.2, 25) has a substantially flat frequency response over a range of about 20 to 2KHz (see page 15 line 7-23), and an electro-larynx of the input signal generated by said waveform generator (see fig.2, 211,215) has a harmonic structure corresponding to a normal glottal excitation, defined over multiple cycles (see page 13 line 25-page.14 line15).

Consider claim 22, Cheon teaches an electro-larynx comprising:

A. a waveform generator (see fig.2, (211,215) configured to selectively generate an input signal , wherein said input signal has a harmonic structure corresponding to a normal glottal excitation, defined over multiple cycles (see page 13 line 25-col.14 line16).

B. a transducer (see fig.2, 25 vibrator) having a throat engagement portion (see fig.1, 15), said transducer (see fig.2, 25) configured to receive and transform said input signal into a corresponding output vibration of said throat engagement portion (see 1, 15 and page 10 line 1-5 and page 11 line 4-20, page 13 line 10-12); and a power source 9see fig.2,27 and page 11 line 14-20).

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 12-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Watson (US PAT. 3,978,286).

Consider claim 12, Watson teaches a linear transducer (see fig.1), for use (in any event, " for use" is not a positive structural limitation) in an electro-larynx having a waveform generator (such as motor) that produces an input signal and a power source (30 battery), said linear transducer comprising:

A. an armature assembly (see fig.1, 24), which receives said input signal and vibrates as a function thereof;

B. a suspension assembly (80,68) coupled to said armature assembly (24); and

C. a coupler disk (88, washer), coupled to said suspension assembly (32), wherein a vibration (motion) in said armature assembly causes a corresponding vibration of said coupler disk (88,18) according to a linear function (transform an input signal to an output vibration) of said input signal (see col.2 line 14-col. 3. line35).

Consider claims 13-14 Waston teaches an electro-larynx according of the suspension assembly is a flexible planar membrane (see fig .1, 18, diaphragm) and an electro-larynx according of the suspension assembly is a mechanical spring (see fig.1, (80,68)).

5. Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cheon (US PAT. WO 99/53867) in view of Watson (US PAT. 3,978,286).

Consider claim 2, Cheon does not clearly teach a linear transducer includes: a. an armature assembly, which receives said input signal and vibrates as a function thereof,

b. a suspension assembly coupled to said armature assembly; and

c. a coupler disk, as said engagement portion, coupled to said suspension assembly, wherein a vibration in said armature assembly causes a corresponding vibration of said coupler disk;

However, Waston teaches a linear transducer includes: a. an armature assembly (see fig.1, 24), which receives said input signal and vibrates as a function thereof,

b. a suspension (80, spring) assembly coupled to said armature assembly (24); and

c. a coupler disk (88, washers), as said engagement portion, coupled to said suspension assembly (80), wherein a vibration in said armature assembly (24) causes a corresponding vibration of said coupler disk (88 and see col.2 line 44-col.3 line 35).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was make to combine the teaching of Wastson into Cheon to provide a speech aid or vibrator device which can function as a convenient external source of such vibrations.

Consider claim 3-4 Waston teaches an electro-larynx according of the suspension assembly is a flexible planar membrane (see fig .1, 18, diaphragm) and an electro-larynx according of the suspension assembly is a mechanical spring (see fig.1, (80,68)).

6. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cheon (WO 99/53867) as modified by Watson (US PAT. 3,978,286) as applied to claims 1-2 above, and further in view of Applicant's prior.

Consider claim 5 Waston teaches an electro-larynx according to of the armature (see fig.1, 24) assembly is substantially disposed within a cylindrical motor assembly that defines an internal void region along a central axis and having an radial magnetic field maintained within said internal void region, but Cheon and Watson do not clearly teach a armature assembly includes:

a. a bobbin coupled to said suspension assembly and disposed within said internal void region and along said central axis; and

b. a wire coil wrapped around said bobbin and within said magnetic field;

whereby when said input signal is applied to said wire coil a corresponding vibration of said bobbin is experienced.

However, Applicant's prior art teaches a. a bobbin (see fig.2, 214) coupled to said suspension assembly (216) and disposed within said internal void region and along said central axis; and

b. a wire coil (212) wrapped around said bobbin and within said magnetic field; whereby when said input signal is applied to said wire coil a corresponding vibration of said bobbin (214) is experienced (see specification page 3 line 11-29).

Therefore, it would obvious to one of ordinary skill in the art at the time the invention was make to combine the teaching of applicant's prior art into the teaching of Cheon and Watson to provide an electro-larynx for market demand.

7. Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cheon (WO 99/53867) as modified by Watson (US PAT. 3,978,286) as applied to claims 1-2 above, and further in view of Arnott (US PAT.5,128,905).

Consider claim 6 Cheon and Watson do not teach an electro-larynx according of the armature assembly includes a piezo electric actuator coupled to said engagement portion, wherein an input signal delivered to said piezo-electric actuator causes a corresponding linear vibration of said engagement portion.

However, Arnott teaches an electro-larynx according of the armature assembly includes a piezo electric actuator coupled to said engagement portion, wherein an input signal delivered to said piezo-electric actuator causes a corresponding linear vibration of said engagement portion (see fig.1 and col. lines 5-40);

Therefore, it would obvious to one of ordinary skill in the art at the time the invention was make to combine the teaching of Arnott into the teaching of Cheon and Watson to provide a new and improved from of acoustic field transducer.

Consider claims 7-8 Arnott teaches the armature assembly includes a magneto-resistive element (such as polymeric) coupled to said engagement portion, wherein an input signal delivered to said magneto-resistive element causes a corresponding linear vibration of said engagement portion (see fig.1 and col.2 lines 5-40) and the linear transducer has a substantially flat frequency response over a range of about 20 to 2KHz (see fig.1 and col3 line 54-col.4 line 28).

8. Claims 10-11, 19-21 and 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cheon (WO 99/53867) in view of Pearson (US PAT. 5,400,434) and Bronson (US PAT. 4,797,926).

Consider claims 10 and 23 Cheon teach an electro-larynx of the waveform generator (see fig.2, 211,215) includes: . a pitch adjuster, configured to add pitch information to said glottal sample data (see page 16 line 13-30); but Cheon does not clearly teach

a. glottal sample data stored in an electronic memory;

c. a multiplier, configured to add amplitude information to said glottal sample data;

d. an equalization filter for generating from said glottal sample data, pitch information, and amplitude information a base digital input signal having a predetermined frequency response; and

e. a digital to analog converter, configured to transform said base digital input signal into said input signal.

. However, Pearson teaches a glottal sample data stored in an electronic memory (see fig.8, 85 and see col.8 line 46-col.9 line 33);

c. a multiplier (95, (amplitude control)), configured to add amplitude information to said glottal sample data; and

e. a digital to analog converter, configured to transform said base digital input signal into said input signal (fig.7, 81 and see col.26-col.6 line 41).

Therefore, it would have been obvious to one of ordinary skill in the art at the time

the invention was make to combine the teaching of Pearson into Cheon to provide a source signal which is capable of quickly and reliably producing voice quality that is indistinguishable from human voice.

On the other hand, Bronson teaches an equalization filter (see fig.2, 200 synthesizer) for generating from said glottal sample data, pitch information, and amplitude information a base digital input signal having a predetermined frequency response (see col.8 line 27-col.9 line 15).

Therefore, it would obvious to one of ordinary skill in the art at the time the invention was make to combine the teaching of Bronson into Cheon to provide the

synthesizer reproduces speech from the transmitted information

utilizing the referenced techniques for sinusoidal modeling for the voiced portion of the speech and utilizing either multipulse or noise excitation modeling for the unvoiced portion of the speech.

Consider claims 11 and 24 Pearson teaches an electro-larynx of the glottal sample data is obtained by inverse filtering and digitally sampling voice data (see fig.9, 103 and col.6 line 12-63).

Consider claim 19, Cheon teaches an electro-larynx comprising :

A waveform generator (see fig.2, 2111,215) comprising :

A transducer (see fig.2, 23, vibrator) configured to receive and transform said input signal into a corresponding output vibration of throat engagement portion (see page 15 line 2 –page 16 line7) and a pitch adjuster, configured to add pitch information to said glottal sample data (see page 8 line 4-18); but Cheon doen not clearly teach

a glottal sample data stored in an electronic memory;

b. a pitch adjuster, configured to add pitch information to said glottal sample data;

c. a mixer, configured to add amplitude information to said glottal sample data; and

e. a digital to analog converter, configured to transform said base digital input signal into said input signal; and an equalization filter for generating from said glottal sample data, pitch information, and amplitude information a base digital input signal having a predetermined frequency response.

However, Parson teaches a glottal sample data stored in an electronic memory (see fig.8, 85 and see col.8 line 46-col.9 line 33);

b. a pitch adjuster (91, pitch control), configured to add pitch information to said glottal sample data;

c. a mixer (95, (amplitude control)), configured to add amplitude information to said glottal sample data; and

e. a digital to analog converter, configured to transform said base digital input signal into said input signal (fig.7, 81 and see col.26-col.6 line 41).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was make to combine the teaching of Pearson into Cheon to provide a source signal which is capable of quickly and reliably producing voice quality that is indistinguishable from human voice.

On the other hand, Bronson teaches an equalization filter (see fig.2, 200 synthesizer) for generating from said glottal sample data, pitch information, and amplitude information a base digital input signal having a predetermined frequency

response (see col.8 line 27-col.9 line 15).

Therefore, it would obvious to one of ordinary skill in the art at the time the invention was make to combine the teaching of Bronson into Cheon to provide the synthesizer reproduces speech from the transmitted information utilizing the referenced techniques for sinusoidal modeling for the voiced portion of the speech and utilizing either multi pulse or noise excitation modeling for the unvoiced portion of the speech.

Consider claim 20 Pearson teaches an electro-larynx of the glottal sample data is obtained by inverse filtering and digitally sampling voice data (see fig.9, 103 and col.6 line 12-63).

Consider claims 21 and 25 Bronson teaches a waveform generator of the glottal sample data is derived from a mathematical model which preserves the harmonic qualities of the voice data (see col.5 line 50-col.6 line 64).

9. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Watson (US PAT. 3,978,286) in view of Applicant's prior.

Consider claim 15 Waston teaches an electro-larynx according to of the armature (see fig.1, 24) assembly is substantially disposed within a cylindrical motor assembly that defines an internal void region along a central axis and having an radial magnetic field maintained within said internal void region, but Watson does not clearly teach a armature assembly includes:

a. a bobbin coupled to said suspension assembly and disposed within said

internal void region and along said central axis; and

b. a wire coil wrapped around said bobbin and within said magnetic field;

whereby when said input signal is applied to said wire coil a corresponding vibration of said bobbin is experienced.

However, Applicant's prior art teaches a. a bobbin (see fig.2, 214) coupled to said suspension assembly (216) and disposed within said internal void region and along said central axis; and

b. a wire coil (212)wrapped around said bobbin and within said magnetic field; whereby when said input signal is applied to said wire coil a corresponding vibration of said bobbin (214) is experienced (see specification page 3 line 11-29).

Therefore, it would obvious to one of ordinary skill in the art at the time the invention was make to combine the teaching of applicant's prior art into the teaching of Watson to provide an electro-larynx for market demand.

10. Claims 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watson (US PAT. 3,978,286) in view of Arnott (US PAT.5,128,905).

Consider claim 6 Watson does not teach an electro-larynx according of the armature assembly includes a piezo electric actuator coupled to said engagement portion, wherein an input signal delivered to said piezo-electric actuator causes a corresponding linear vibration of said engagement portion.

However, Arnott teaches an electro-larynx according of the armature assembly includes a piezo electric actuator coupled to said engagement portion, wherein an input

signal delivered to said piezo-electric actuator causes a corresponding linear vibration of said engagement portion (see fig.1 and col. lines 5-40);

Therefore, it would obvious to one of ordinary skill in the art at the time the invention was make to combine the teaching of Arnott into the teaching of Watson to provide a new and improved from of acoustic field transducer.

Consider claims 17-18 Arnott teaches the armature assembly includes a magneto-resistive element (such as polymeric) coupled to said engagement portion, wherein an input signal delivered to said magneto-resistive element causes a corresponding linear vibration of said engagement portion (see fig.1 and col.2 lines 5-40) and the linear transducer has a substantially flat frequency response over a range of about 20 to 2KHz (see fig.1 and col3 line 54-col.4 line 28).

Response to Arguments

11. Applicant's arguments with respect to claims 1-25 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure Griffin (US PAT. 6252,966) is recited to show other related the electro-larynx.

13. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:(703) 872-9314

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington. VA., Sixth Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lao,Lun-See whose telephone number is (703) 305-2259 The examiner can normally be reached on Monday-Friday from 8:00 to 6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Kuntz, can be reached on (703) 305-4708.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 whose telephone number is (703) 306-0377.

Lao,Lun-See
Patent Examiner
US Patent and Trademark Office
Crystal Park 2
(703305-2259

DUC NGUYEN
PRIMARY EXAMINER